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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/010,951	11/13/2001	Miaochen Wu	3070.1009-000	5696
28120	7590	12/14/2004	EXAMINER	
ROPEs & GRAY LLP ONE INTERNATIONAL PLACE BOSTON, MA 02110-2624				SAMS, MATTHEW C
		ART UNIT		PAPER NUMBER
		2643		

DATE MAILED: 12/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/010,951	WU, MIAOCHEN
	Examiner Matthew C. Sams	Art Unit 2643

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 13 November 2001.  
 2a) This action is **FINAL**.      2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-28 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-28 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 25 February 2002 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date 3/29/2004.

4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.  
 5) Notice of Informal Patent Application (PTO-152)  
 6) Other: \_\_\_\_\_.

**DETAILED ACTION*****Information Disclosure Statement***

1. The information disclosure statement filed March 29, 2004 has been considered.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3, 9-11, and 19-21 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Eastmond (US-4,606,075).

Regarding claim 1, Eastmond teaches of a method for setting the gain in an automatic gain controller for a receiver by detecting a peak signal voltage from an estimated amplitude signal in a received signal. (Col. 1 line 69 through Col. 2 line 13) Eastmond teaches of setting the gain dependent on the difference between the detected peak signal voltage and peak reference voltage. (Col. 4 lines 38-44)

Regarding claim 2, Eastmond teaches of a method for converting the estimated amplitude signal, the recovered carrier signal and a reference signal to the same common mode. Eastmond teaches the peak signal voltage being

detected from the converted estimated amplitude signal and the converted recovered carrier signal. (Col. 1 line 69 through Col. 2 line 16)

Regarding claim 3, Eastmond teaches that detected the peak reference voltage from the converted reference signal. (Col. 1 line 69 through Col. 2 line 16)

Regarding claim 9, Eastmond teaches an integrating difference amplifier. (Col. 6 lines 45-47)

Regarding claim 10, the limitations of claim 10 are rejected as the same reason set forth in claim 2.

Regarding claim 11, the limitations of claim 11 are rejected as the same reason set forth in claim 3.

Regarding claim 19, the limitations of claim 19 are rejected as the same reason set forth in claim 1.

Regarding claim 20, the limitations of claim 20 are rejected as the same reason set forth in claim 2.

Regarding claim 21, the limitations of claim 21 are rejected as the same reason set forth in claim 3.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which

said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4-5, 12, 22-23 and 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eastmond, and Shakiba (US-6,463,108).

Regarding claim 4, Eastmond teaches of detecting a peak signal voltage from an estimated amplitude signal. (Col. 1 line 69 through Col. 2 line 13) Eastmond differs from the claimed invention in failing to mention that the estimated amplitude signal is detected until the amplitude of the carrier signal decreases below the amplitude of the estimated amplitude signal. However, Shakiba teaches the conditions of validity for an estimated amplitude signal and the amplitude of a carrier signal. (Col. 4 line 39 through Col. 5 line 15) At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the conditions of validity for an estimated amplitude signal and carrier signal of Shakiba with a method for setting the gain in an automatic gain controller of a receiver like that of Eastmond. One of ordinary skill in the art would have been motivated to do this since an automatic gain controller changes the gain of the received input to maintain a consistent level of performance and relying on only one estimation of the received signal can hurt performance when the signals differ significantly. (Col. 1 lines 19-25)

Regarding claim 5, Shakiba teaches a peak signal is detected from the carrier signal after the carrier is recovered. (Col. 4 line 39 through Col. 5 line 15 and Fig. 5B)

Regarding claim 12, the limitations of claim 12 are rejected as the same reason set forth in claim 4.

Regarding claim 22, the limitations of claim 22 are rejected as the same reason set forth in claim 4.

Regarding claim 23, the limitations of claim 23 are rejected as the same reason set forth in claim 5.

Regarding claim 27, the limitations of claim 27 are rejected as the same reason set forth in claim 5.

Regarding claim 28, the limitations of claim 28 are rejected as the same reason set forth in claim 5.

6. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Eastmond and Shakiba as applied to claim 12 above, and further in view of McGowan (US-2001/0000456).

Regarding claim 13, Eastmond and Shakiba teach the limitations of claim 12. Eastmond and Shakiba differ from the claimed invention in failing to mention the peak signal is detected from the I signal after the carrier is recovered. However, McGowan teaches a peak signal is detected from the I signal. (Fig. 2 and Abstract) At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the peak I signal detector of McGowan with the amplitude estimating and gain setting apparatus of Eastmond and Shakiba. One of ordinary skill in the art would have been motivated to do this since maintaining in-band signal quality helps to control out-of band emissions.

7. Claims 6-8, 14-16 and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eastmond and Baldwin et al. (US-6,735,422 hereinafter, Baldwin).

Regarding claims 6-8, Eastmond teaches the limitations of claim 1. Eastmond differs from the claimed invention in failing to mention the carrier signal is an I, Q or I and Q signal. However, Baldwin teaches a carrier signal that is an I, Q or I and Q signal. (Col. 9 line 13 through Col. 10 line 25) At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the I, Q or I and Q carrier signals of Baldwin with the method for setting the gain in an automatic gain controller of a receiver like that of Eastmond. One of ordinary skill in the art would have been motivated to do this since QAM requires an I signal and a Q signal, therefore sending two signals with different phases reduces the probability of information loss.

Regarding claims 14-16, the limitations of claims 14-16 are rejected as the same reason set forth in claims 6-8.

Regarding claims 24-26, the limitations of claims 24-26 are rejected as the same reason set forth in claims 6-8.

8. Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eastmond and Isaksen et al. (US-6,510,188 hereinafter, Isaksen).

Regarding claim 17, Eastmond teaches the limitations of claim 9. Eastmond differs from the claimed invention in failing to mention a differential amplifier. However, Isaksen teaches a differential amplifier. (Col. 1 lines 40-65)

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the differential amplifier of Isaksen with an apparatus for setting the gain in an automatic gain controller of a receiver like that of Eastmond. One of ordinary skill in the art would have been motivated to do this since using a differential amplifier is a simple way to determine the correct gain settings for the automatic gain controller. (Col. 1 lines 31-65)

Regarding claim 18, Isaksen teaches of a differential amplifier. It is well known in the art that when dealing with I and Q signals, modification done to the signals should be identical therefore it is obvious to have differential amplifiers with the same common mode rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew C. Sams whose telephone number is (703)305-0810. The examiner can normally be reached on M-F 7:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz can be reached on (703)305-4708. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MCS  
12/10/2004

*George Eng*  
GEORGE ENG  
PRIMARY EXAMINER